

Atrial Fibrillation

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BASIC INFORMATION

Description

Atrial fibrillation (AF) is an abnormal heart rhythm caused by rapid, irregular contractions of the upper chambers (atria) of the heart. Because the heart is beating faster and more irregularly than normal, it does not fill or pump blood properly. Failure to pump blood normally can result in fluid accumulation in the lungs, chest, or abdomen and can lead to weakness and heart failure.

Causes

The most common cause of AF is advanced heart disease, with enlargement of one or both atria. Advanced heart diseases in dogs may include degeneration and leakage of heart valves, diseases of heart muscle (cardiomyopathy), and certain congenital heart deformities.

AF can occur spontaneously for unknown reasons (idiopathic) in giant-breed dogs such as the Great Dane and Irish wolfhound. Occasionally the administration of narcotics has caused AF in large dogs.

Clinical Signs

Clinical signs of both heart disease and AF are usually present. Weakness and inability to exercise are common. Fainting episodes may occur, especially with exertion. Cats are often less active than usual. Breathing may be faster and labored, and coughing may be noted.

Giant-breed dogs usually have no symptoms at first, and the AF may be detected only when an irregular rhythm is heard with a stethoscope and an electrocardiogram (ECG) is performed. Some of these dogs eventually develop signs of heart disease.

Diagnostic Tests

An ECG is needed to confirm the presence of AF. Additional tests, such as chest x-rays and an echocardiogram (heart ultrasound), are then done to search for the underlying cause. Any fluid removed from the chest or abdomen may be sent for analysis. Laboratory tests are usually recommended to rule out other diseases that cause similar signs.

TREATMENT AND FOLLOW-UP

Treatment Options

Treatment is initially directed at any underlying heart disease or heart failure and may include drugs to increase contractility (such as pimobendan) or decrease fluid retention (diuretics).

Then medications such as the following are started to bring the heart rate down to a more normal range.

- Digoxin (a form of digitalis) increases the heart's ability to contract and helps to slow the heart rate. It may be used in combination with other drugs (diltiazem, beta-blockers) to achieve the best control of heart rate. Side effects such as decreased appetite, vomiting, diarrhea, and other arrhythmias often limit its use. Cats do not tolerate digoxin well.
- Diltiazem is a calcium channel blocker commonly used to decrease heart rate in animals with AF. It also decreases the heart's ability to contract, so it is not started until heart failure is controlled in dogs. In cats it may be used right away, because their underlying heart disease usually does not affect contraction. Side effects include depression, decreased appetite, worsening of heart failure, constipation (cats), and very slow heart rates.
- Multiple beta-blockers (atenolol, metoprolol, propranolol, carvedilol) are used in dogs, but in cats atenolol is used most commonly. These drugs slow the heart rate and also decrease contractions. Side effects include very slow heart rates, weakness, depression, low blood pressure, and worsening of heart failure.
- Giant breeds of dogs with spontaneous AF are usually started on a beta-blocker to control their heart rate. In some cases, a procedure called *electrical cardioversion* may be performed with the animal under anesthesia to try and convert the AF back to a normal sinus rhythm. Although the rate of conversion is good, recurrences are common.

Follow-up Care

Once medications are started, ECGs are periodically repeated to monitor heart rate and make adjustments in medications. A Holter monitor, which is a 24-hour continuous monitor, may be recommended to ensure that the heart rate stays within an acceptable range during normal activities. Chest x-rays, echocardiograms, abdominal x-rays, and laboratory tests may be repeated until the animal is stable and then periodically, especially in giant-breed dogs, to monitor for any signs of significant heart disease or in any animal if signs of heart failure develop.

Prognosis

Dogs with advanced heart disease and AF may live 3-12 months, depending on the type and severity of their heart disease. Cats live an average of 3-6 months. Affected cats are prone to develop blood clots in their left atrium, so they are usually placed on blood thinners such as aspirin or clopidogrel (anticoagulation therapy). Giant-breed dogs with idiopathic AF can live for years; however, their AF can progress to serious heart disease (dilated cardiomyopathy).